



# **Validation Report**

Version 1.4 26-October-2023

Document Prepared by AENOR INTERNACIONAL S.A.U.





# Forest Carbon Partnership Facility (FCPF) Carbon Fund

# Validation Report (VAR)

ER Program Name and Country:	Promoting REDD+ through Governance, Forest Landscapes & Livelihoods in Northern Lao PDR
Crediting Period	01-01-2019 to 31-12-2024
Name of the VVB:	AENOR INTERNACIONAL S.A.U.
Contact information of the VVB:	Génova 6. 28004 Madrid - Spain. Telephone +34 914326000 jfuentes@aenor.com www.aenor.com
Date of the Validation Report:	26-10-2023
Version:	1.4
Report Approved by	José Luis Fuentes



## **1. VALIDATION STATEMENT**

The review and cross-check of explanations and justifications included in the Monitoring Report Version 4.1 dated on 26-09-2023 and supporting documents, have provided AENOR with sufficient evidence to determine with a reasonable level of assurance the compliance of the Emission Reduction Program in Lao PDR (Promoting REDD+ through Governance, Forest Landscapes & Livelihoods in Northern Lao PDR), with the applicable validation and materiality set out in the Forest Carbon Partnership Facility (FCPF) requirements.

The scope covered by the validation includes the ER Program's crediting period (01-01-2019 to 31-12-2024), the selected Reference Period (01-01-2005 to 31-12-2014), the accounting area (23,054,257 ha), the REDD Country Participant's Forest Monitoring System, the Centralized REDD+ Programs and Projects Data Management System and the following GHG sources and sinks (REDD+ activities), carbon pools and type of GHGs:

GHG sources and sinks (REDD+ activities)
Emissions from deforestation – Included
Emissions from forest degradation – Included
Removals from forest restoration – Included
Removals from reforestation – Included
Carbon pools
Above-Ground biomass (AGB) – Included
Below-Ground biomass (BGM) – Included
Dead wood – Excluded
Litter – Excluded
Soil Organic Carbon (SOC) – Excluded
GHG
CO <sub>2</sub> – Included
CH <sub>4</sub> – Excluded
N <sub>2</sub> O – Excluded

The validation was performed through a combination of document review, interviews and communications with relevant staff. Findings were issued, requesting: MAJOR Corrective Action Request (MCAR); MINOR Corrective Action Request (mCAR); and Observations (OBS) according to the FCPF validation and verification guidelines (VVG) v2.5 section 11, to ensure compliance with all requirements.

A total of 3 MCAR, 4 mCAR and 7 Observations were raised as part of the validation process. All MCAR, mCAR and OBS were successfully addressed by the ER Program and closed by the VVB and no findings remained open. The findings are reported in the appendix 1 of this report.

Regarding the reference Level, it is AENOR's opinion that the ER program Promoting REDD+ through Governance, Forest Landscapes & Livelihoods in Northern Lao meets the applicable validation criteria set out in the FCPF requirements, and that it is free of material misstatements. Hence, AENOR recommends the FCPF Carbon Fund to continue with the relevant subsequent steps to proceed with the verification of the FCPF ERs.

Statement issuing date: 26-October-2023

Intended User: World Bank Group, FCPF Carbon Fund Participants

Javier Cócera Cañas Team Leader

José Luis Fuentes Climate Change Manager



# **2.** Agreement

## 2.1 Level of Assurance

The validation audit assessment was conducted to provide a reasonable level of assurance concerning material misstatements, errors, or omissions in conformance with the validation criteria and scope set out in the FCPF requirements, in conformance with paragraph 31 of the VVG v2.5. The provisions undertaken to ensure such a reasonable level of assurance included a risk assessment of the sources and the magnitude of potential errors, omissions, and misstatements, as required by section 4.4.1 of ISO 14064-3:2006, previous to the elaboration of a sampling/evidence-gathering plan.

Based on the previous provisions and considering the findings raised during the audit, a positive evaluation statement reasonably ensures that the FCPF Program Reference Level is materially correct and is a fair representation of the GHG data and information provided in the ER Monitoring Report and supporting documents.

## 2.2 Objectives

The objective of audit was to conduct a systematic, independent, and documented process for the evaluation of the GHG assertion made by the Emission Reduction Program in Lao PDR, against the FCPF validation criteria to determine if the Program is in compliance to the agreed criteria, and its implementation can be expected to result in the proposed GHG reductions and removal enhancements as described in the ER Monitoring Report and its Annex 4.

The general objectives of the validation, as required by paragraph 32 of the VVG v2.5, were:

- Review of the ER Monitoring Report and supporting information to confirm the correctness of presented information;
- Identify if the methodological steps and data are publicly available in accordance with applicable criteria;
- Assess whether the start date of the crediting period proposed by the ER Program is in compliance with the definition provided in the FCPF Glossary of terms;
- Assess the extent to which the Reference Level has been reported with a transparent and coherent step-by-step process that enables reconstruction and have meet the requirements of applicable criteria;
- Assess the extent to which the Reference Level is materially accurate;
- Identify sources of uncertainty due to both random and systematic errors related with the Reference Level setting and determine whether the ER Program has conducted the uncertainty analysis in compliance applicable criteria;

• Assess the National Forest Monitoring System (NFMS) of the ER Program and validate that there are controls for sources of potential errors, omissions, and misstatements in place;

• Identify components of the NFMS that require attention and/or adjustment in future monitoring and reporting or identify areas of risk of future non-compliance.

## 2.3 Criteria

The audit assessment was carried against the criteria set for validation by the following documents:

- FCPF Methodological Framework, v3, April 2020.
- Validation and Verification Guidelines v2.5 September 2023.
- Buffer Guidelines v3.1 May 2022.
- Guidelines on the application of the Methodological Framework.



1. Use of Interpolation of Data in Relation to the Reference Period of an ER Program v1 June 2016.

2. Technical Corrections to GHG Emissions and Removals Reported in the Reference Period v2 November 2020.

3. The Definition of Reporting Periods of Emission Reduction Programs v1 November 2018.

4. Uncertainty Analysis of Emission Reductions v1.0 November 2020.

- Process Guidelines v5.3 June 2023.
- Glossary of Terms v2.2 May, 2022.
- Guidelines contained in the ER Monitoring Report Template (v2.5), the Validation Report Template (v1.2, September 2021) and the Verification Report Template (v1.3, August 2022);
- ISO 14064-3:2006
- ISO 14065:2013
- ISO 14066:2011

The following documents will be considered as documents that provide acceptable methods for satisfying requirements provided in the above criteria, as per VVG paragraph 38:

- 2006 IPCC Guidelines;
- 2013 IPCC Wetlands Supplement;
- 2019 refinement to the 2006 IPCC Guidelines;
- GFOI 2016 Methods and Guidance Document;
- FCPF Guidance Notes.

Specifically, the following criteria and indicators of the MF were applicable to the validation, as per paragraph 37 of the VVG 2.5:

Criteria/indicator	Торіс
6	Data availability
7, 8, 9.1	Identification and address source(s) of uncertainty

### 2.4 Scope

The scope of validation included as per section 8.4 of the VVG v.2.5:

- The Crediting Period of the FCPF program applicable to the ER Program;
- The selected Reference Period
- The ER Program Accounting Area as defined in the ER Program's Final ER Program Document (ER-PD);
- The GHG sources and sinks associated with any of the REDD+ Activities accounted for as required by the Methodological Framework;
- The Carbon Pools and greenhouse gases to be accounted for as required by the Methodological Framework;
- The REDD Country Participant's Forest Monitoring System as described in the ER Monitoring Report;
- The Centralized REDD+ Program and Projects Data Management System (DMS) as described in the Monitoring Report.

### 2.5 Materiality

The materiality threshold of the validation, as required section 8.5 of the VVG v2.5, was:

• Quantitative: the threshold for materiality with respect to the aggregate of errors, omissions, and misrepresentations relative to the total reported GHG emission and removals was one



percent (1%). (Under-estimation of the Reference Level was not considered a material discrepancy).

• Qualitative: any issue related to management system and controls, poorly managed documentation, and non-compliance with the applicable requirements of the MF and other applicable criteria; and any errors in reporting of factual information in the ER Monitoring Report as required by the FCPF MF.

The validation process based on the desk review found that there are not quantitative and or qualitative material discrepancies affecting the Reference Level and the Reference Level setting.



# **3.** METHODOLOGY AND PLANNING

## 3.1 Validation Team

Name	Role		_	Activities	_	
		Desk review	Site visit	Reporting	Supervision	Technical review
Javier Cócera	Team Leader	х	х	х	х	
Carlos Jiménez	Validator/verifier auditor	х		х		
Daniel Bermejo	Validator/verifier auditor	х		х		
Adrián Vidal	Validator/verifier auditor	х		х		
José Luis Fuentes	Reviewer				х	х
Pablo Moreno	Auditor in trainee	х		Х		
Bouangeunh Khensabab	Local expert	Х	х			

## 3.2 Validation schedule

Tasks	Deliverable	Date	Responsible
1. Kick-off meeting	Minute of KOM	09.05.2023	All parties
2. Reception of ERMR	ERMR	16.05.2023	FMT
3. Initial Desk Review	Preliminary relevant findings, if applicable	30.05.2023	AENOR
4. Draft Sampling Plan	Preliminary sampling plan	05.06.2023	AENOR
5. Sampling Plan reviewed by FMT	Sampling plan with comments	09.06.2023	AENOR/ FMT
6. Sampling plan	Sampling plan	13.06.2023	AENOR
7. Draft Audit Plan	Preliminary audit plan	13.06.2023	AENOR
8. Audit Plan reviewed by	Audit plan with comments	20.06.2023	AENOR/ Country
REDD Country and FMT			participant / FMT
9. Audit Plan	Audit plan	26.06.2023	AENOR
10. Country visit / office	Visit	31-07 to	AENOR/ Country
meetings		01-08 2023	participant/ FMT
11. Issuance of the list of findings	List of findings	08.08.2023	AENOR
12. Review of the country's	Second round of findings,	29.08.2023	Country participant is
answer to the list of	if applicable. If other		responsible to response
findings	rounds are needed, two		the round of findings,
	weeks will be added for		and after the answer,
	the review by the country,		AENOR is responsible to



	and two weeks to the review and response by AENOR		review the Country participant responses
13. Draft validation and verification reports preparation	Preliminary reports	26.09.2023	AENOR
14. Technical review	Draft validation and verification reports	03.10.2023	AENOR
15. Draft validation and verification reports revised by Country Participant and FMT	Plan with comments	10.10.2023	Country participant / FMT
16. Issuance of validation and verification report after revision	Final validation and verification reports	17.10.2023	AENOR

## **3.3** Methodology description

The validation (not extended scope) was performed simultaneously with the first verification, through a combination of document review, interviews, and communications with relevant personnel. The conformity was evaluated against the criteria described in section 2.3.

A sampling/evidence-gathering plan was developed for the validation and first verification of the ER Program, as required by section 9.4 of the VVG v2.5. A risk assessment of the sources and the magnitude of potential errors, omissions, and misstatements was carried out, as required by section 4.4.1 of ISO 14064-3:2006, previous to the elaboration of the sampling/evidence-gathering plan. The sampling/evidence-gathering plan was developed considering all the criteria set by section 4.4.3 of ISO 14064-3:2006:

- a) Agreed level of assurance;
- b) validation and verification scope;
- c) validation and verification criteria;

d) amount and type of evidence (qualitative and quantitative) necessary to achieve the agreed level of assurance;

- e) methodologies for determining representative samples; and
- f) risk of potential errors, omissions, or misstatements.

All evidence requested and reviewed was crosschecked in order to evaluate the consistency of information in the ER Monitoring Report. All statements, claims and procedures described within the scope of the validation included in the ER Monitoring Report were part of the assessment of the sampling/evidence-gathering plan and all the reviewed supporting evidence were evaluated against the ER Monitoring Report.

The magnitude of the sampling was based on the previous experience of AENOR as VVB and ensure the achievement of reasonable level of assurance. The sampling/evidence-gathering plan was open to be modified based on any new risks or materiality concerns that could potentially lead to errors, omissions or misstatements identified during the validation process.

The validation team carried out a deep and meticulous review of the calculation spreadsheets to verify the correct application of the used methodology (formulae, equations) and checked that data required to calculate the GHG emission was appropriately provided.

All documentation provided by the Country Participant was assessed against the applicable criteria described in section 2.3. Several MCAR, mCAR and OBS were raised and submitted to the Country Participant to ensure compliance with all requirements, which addressed them either by providing to the



validation team with the requested information or by making the appropriate corrections. Updated versions of the documentation were submitted by the Country Participant and the validation team reassessed them against the guidance documentation. This process was repeated iteratively until all MCAR were fully closed.

All findings, 3 MCAR, 4 mCAR and 7 OBS, issued by AENOR's audit team during the validation process have been closed. The findings issued during the validation process and the inputs for their closure are described in Appendix 1 of this report.

## **3.4** Review of documentation

A detailed review of all documentation was conducted to ensure consistency with and identify any deviation from FCPF requirements. Initial review focused on the ER Monitoring Report and included an examination of the Annex 4. Specially, in relation to the carbon pools, sources and sinks included within the scope of the ER Program, the methodological approach for the determination of the Reference Level, its alignment with IPCC guidelines, the data and parameters used for calculations, the estimated uncertainty, and the design of the NFMS.

In addition to the ER Monitoring Report, all documentation cited in it was downloaded and reviewed in order to verify its public accessibility and to crosschecked with the statements made in the ER Monitoring Report. These documents include, among others, calculation spreadsheets used for the determination of emission factors (EF) and estimation of the Reference Level, GIS data (satellite images and remote sensing analysis) used for determination of activity data (AD), and additional documents related to monitoring procedures, literature sources of parameters, etc.

As result of the desk review of documents and interviews, the validation team required additional documentation to the Country Participant to verify certain statements or have further clarification regarding GHG assertions, data and parameters used or employed procedures. All the additional documents requested were added to the later versions of the ER Monitoring Report, as required by criterion 6 of the MF.

For a listing of all documents provided by the Country Participant and review for the validation, see Appendix 2.

AENOR confirms that sufficient evidence was presented for all GHG assertions and that there is a clear audit trail that contains the evidence and records that validate the stated figures in this validation report since:

- Sufficient evidence available: the Country Participant has provided the 100% of data used in the calculations to achieve the final estimated amount of GHG emissions and removals.
- Nature of evidence: the raw data were collected from reliable sources. They are detailed in the program documents and have been provided to the validation team.
- Cross-checked evidence: AENOR cross-checked the collected information through interviews with stakeholders and reproducing calculations.

### **3.5 REDD Country Visit**

In accordance with FCPF Carbon Fund Facility Management Team (FMT) and the Country Participant, and provided that a reasonable level of assurance was achievable by other means, AENOR as VVB carried out a "hybrid" audit that ensured the achievement of the assurance level required by the FCPF.

Thus, the Audit was performed an onsite visit, and many aspects were assessed onsite by the team leader and the local expert, who visited the Country in July and August 2023. The rest of the team reviewed all documents remotely and they were able to attend the meeting remotely.

Two technical sessions (one for the validation and one for the verification) were carried on July 31<sup>st</sup> and August 1<sup>st</sup> of 2023, with Country Participant's staff involved in the management of the ER Program and the elaboration of the ER Monitoring Report. The aim of the sessions was to cross-check and verify with the responsible staff of each area the procedures described in the ER Monitoring Report and additional



documents, as well as to clarify doubts from the audit team, prior to the issuance of the first round of findings. The following tables include the list of all Country Participant's staff that participated in the technical sessions, who gathered in the DOF Meeting Room and the FIPD.

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The program covered during the audit was the following:

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Activity & Information	Date	Location
<b>Opening meeting</b> Introduction and scope of the Audit. Review of meeting agenda. Generalities.		
Technical meetings (validation):	-	
1. Interviews with stakeholders		
See chart below	31/07/2023	DOF Meeting
2. <u>Data availability</u>	- , - ,	Room
Source and origin of the data		
3. Uncertainties of the calculation		
Identification and address source(s) of uncertainty (identify, minimize, quantify remaining). Criterion 7, 8, 9.1 MF.		
Technical session (verification):		
<ol> <li>Implementation and operation of the ER program during the reporting period</li> </ol>		
Monitoring and reporting of displacement mitigation Criterion 17.3, 17.4 MF.		
<ol> <li>System for measurement, monitoring and reporting emissions and removals occurring within the monitoring period</li> </ol>		
Consistency of monitored estimates with RL 14.1 MF.		
3. Data and parameters		
Key data and methods detailed and available for reconstruction of the reported emissions and removals. Criterion 6 MF.		
4. Quantification of emission reductions		
Calculation of Emission Reductions. Criterion 22 MF		FIPD
5. Uncertainty of the estimate of emission reductions	01/08/2023	
Identification and address source(s) of uncertainty (identify, minimize, quantify remaining). Criterion 7, 8, 9.1 MF.		
Estimation of residual uncertainty. Criterion 9.2, 9.3 MF.		
6. <u>Transfer of title to ERs</u>		
REDD projects and programs DMS. Criterion 37.		
Double counting. Criterion 23 MF.		
7. <u>Reversals</u>		
Addressing and account for reversals Criterion 18.2 and 19 MF		
Closing Meeting:	1	
Remarks, clarifications, questions, following steps.		



## 4. VALIDATION OF ER PROGRAM DESIGN

## 4.1 Completeness of Report

AENOR made a review of the ER Monitoring Report, supporting information, procedures, calculations, and supporting documentation of the Emission Reduction Program in Lao PDR (Promoting REDD+ through Governance, Forest Landscapes & Livelihoods in Northern Lao PDR), and confirms that Annex 4 of the ER Monitoring Report contains the required information to be subject to validation.

## 4.2 Start date of the crediting period

AENOR assessed information provided in the ER Monitoring Report and is able to confirm that the start date of the ER Program's crediting period, 1<sup>st</sup> of January 2019, complies with the definition of the start date provided in the FCPF Glossary of Terms, since:

- It is not earlier than the date the first ER Program Measure generating ERs has been implemented.
- It has justified with objective evidence to AENOR.
- It is not earlier than January 2016, date of program inclusion into the carbon fund portfolio.
- It does not fall within the Reference period (01/01/2005 to 31/12/2014).
- It has been demonstrated to AENOR that the ER Program complies with requirements on safeguards, carbon accounting, and double-counting as specified in the MF since the start date.

### 4.3 Sources and Sinks

This section is only applicable to Validation with extended scope.

## 4.4 Carbon pools and GHG

This section is only applicable to Validation with extended scope.

### 4.5 Reference Period

This section is only applicable to Validation with extended scope.

## 4.6 Forest Definition

This section is only applicable to Validation with extended scope.

### 4.7 Calculation of average annual historical emissions

After review of all ER Monitoring Report information, procedures, calculations, and supporting documentation, and according to the scope of the validation carried out, AENOR confirms that:

- Promoting REDD+ through Governance, Forest Landscapes & Livelihoods in Northern Lao PDR made a systematic and step-by-step assessment of the methods, assumptions, and approaches used for the calculation of historical emissions, i.e., the Reference Level;
- All equations parameters and fixed data, such as AD and EF, are appropriately linked to the equations used for the quantification of the Reference Level;
- The correctness of presented information, publicly available, reported with a transparent and coherent step-by-step process that enables reconstruction of the Reference Level to validate its compliance with the requirements of applicable criteria;



- The start date of the crediting period proposed by the ER Program is in compliance with the definition provided in the FCPF Glossary of terms;
- The GHG emissions, emission reductions of the Reference Level, and its technical corrections, are materially accurate, and free of material misstatements, errors, or omissions;
- The ER Program's equations and methods are in accordance with applicable validation criteria as the latest IPCC Guidelines, using the most recent guidance and guidelines, as adopted or encouraged by the Conference of the Parties as a basis for estimating forest related GHG emissions by sources and removals by sinks.
- The emissions from forest degradation are accounted. These emissions were estimated using the best available data.

## 4.8 Activity data and emission factors

#### 4.8.1 Activity data

AENOR confirms that the reliability of the source and nature of the reported evidence justified the selection of the monitored data and parameters; and that all parameters related to activity data and described below have been reported in line with guidelines provided in the template and validation criteria.

AENOR confirms the correctness of each step of monitoring from measurement to data transfer and calculation and confirmed the information for each parameter is complete and that the stated parameters are free of error and material misstatements.

AENOR also confirms that methodological steps and data are publicly available in accordance with applicable criteria, and the open links to the multiple sources are provided in the ER Monitoring Report. AENOR confirms that the evidence provided by the ER Monitoring Reports is sufficient and appropriate to determine the GHG reductions and removals.

AENOR confirms that Activity Data were determined periodically and allowed for the Reference Level to be estimated for the Reference Period.

Parameters	$A(j,i)_{\mbox{\scriptsize RP}}$ - Activity Data for the Reference Level (AD) 2005-2015 (10 years)					
Free of Material Misstatement	Yes					
Reported Appropriately	Yes					
	The area of REDD+ strata change over the two periods of the Reference Level (2005-2010 and 2010-2015) was provided by the overlay of the stratified Forest Type Maps and adjusted by a sample-based estimation. Twenty possible changes describe four activities: Deforestation, Forest Degradation, Forest Restoration and Reforestation.					
Assessment Details	<ul> <li>Deforestation: loss of forest carbon stock due to conversion of a forest land stratum to non-forest land stratum.</li> </ul>					
	• Forest Degradation: downward shift of a forest stratum from a higher carbon stock stratum to another forest stratum with lower carbon stock. This shift will effectively include cases of transitional land use change events such as deforestation events not captured in the 5-year					

Assessment details are as follows per activity data grouped parameters:



manning interval (or a starse of vetational assignations)
mapping interval (e.g. stages of rotational agriculture, from a recovered forest to a forest fallow, and/or a non-forest stage, or land conversion for forest plantations). Through the application of this method, fallow land from shifting cultivation sites are largely captured within the RV category and occur most prominently in MD and EG forests, accounting for the vast majority of the degradation events.
• Forest Restoration: upward shift of a forest land stratum with lower carbon stock to another forest/land stratum with higher carbon stock.
<ul> <li>Reforestation: gain of forest carbon stock due to conversion of non-forest land stratum to a forest land stratum</li> </ul>
ER-MR presented information about data sources for estimating Activity Data, methods for mapping land-use and land-use change (including sampling design and size, assessment and labelling, analysis and Activity Data calculation), QA/QC procedures applied, values applied, and uncertainty associated with these parameters.
The validation team conducted an independent analysis of similar remotely sensed data to confirm that the source data was reliable and appropriate. Additionally, the validation team was able to ensure that LULC classification was appropriate and followed the defined classification system.
The validation team conducted independent data checks for each step necessary for the quantification of these parameters. Activity data parameters were examined using remotely sense imagery to ensure accurate classification of LULC classification. Spatial analyses conducted in ESRI GIS confirmed the geographical boundary, ensuring that all activity data fell within the Accounting Area and that the Accounting Area was computed correctly. Independent data checks were used to ensure that the quantification of the parameters was performed correctly. This included an independent review of the literature cited in reference to the applied equations. The uncertainty associated with this parameter was independently calculated after a thorough review of the calculation spreadsheets. The calculation of uncertainty applied the methodology from Olofsson, et al. (2014), and the validation team reviewed and confirmed that the estimation was correct and without any error. Complementary, the audit team attended during the onsite visit, the explanations and the development of these parameters are correct and are in relation to the information stated in the MR.

Parameters	A_DG (j,i)_RP AD for the Reference Level (AD) 2005-2015 (10 years) – Technical correction to the estimate of emissions from forest degradation			
Free of Material Misstatement	Yes			
Reported Appropriately	Yes			



	During the ERPD assessment, the Technical Advisory Panel (TAP) observed that the 5-year frequency of the time-series of AD used for the RL would not fully track the true carbon stock balance of the Regenerating Vegetation (stratum 4). This stratum includes fallow land, previously forested but cleared by shifting cultivation, as cultivation cycles may vary from four to nine years. A conservativeness factor of 15% was therefore applied to the emissions from forest degradation associated with the RV lands.
	ER-MR presented information about data sources for estimating Activity Data, methods for mapping land-use and land-use change (including sampling design and size, assessment and labelling, analysis and Activity Data calculation), QA/QC procedures applied, values applied, and uncertainty associated with these parameters.
Assessment Details	The validation team conducted an independent analysis of similar remotely sensed data to confirm that the source data was reliable and appropriate. Additionally, the validation team was able to ensure that LULC classification was appropriate and followed the defined classification system.
	The validation team conducted independent data checks for each step necessary for the quantification of these parameters. Activity data parameters were examined using remotely sense imagery to ensure accurate classification of LULC classification. Spatial analyses conducted in ESRI GIS confirmed the geographical boundary, ensuring that all activity data fell within the Accounting Area and that the Accounting Area was computed correctly. Independent data checks were used to ensure that the quantification of the parameters was performed correctly. This included an independent review of the literature cited in reference to the applied equations.
	The validation team has also reviewed the specific manual used to improve the quality of the process and the value. The visual interpretation of the plots uses Collect Earth Online (CEO) projects to enable the technicians to assess various drivers of forest degradation.

Parameters	RegrowthRate , Reversal and Doublecounting(stumps) , Adjustments to emissions and removals (Reference Level)				
Free of Material Misstatement	Yes				
Reported Appropriately	Yes				
Assessment Details	Considering that forest biomass increases slowly over time to reach their biomass and the land cover change over time, adjustments are made to not over-estimate emissions or removals. The slow regrowth of the forest is taken into account to not over-estimate removals. The same approach applies to the emissions, to not over- estimate the emissions from a land that would not have regrown completely to forest.				
	ER-MR presented information about data sources for estimating Activity Data, methods for mapping land-use and land-use change (including sampling design and size, assessment and labelling,				



analysis and Activity Data calculation), QA/QC procedures applied, values applied, and uncertainty associated with these parameters.
The validation team conducted independent data checks for each step necessary for the quantification of these parameters. Activity data parameters were examined using remotely sense imagery to ensure accurate classification of LULC classification. Independent data checks were used to ensure that the quantification of the parameters was performed correctly. This included an independent review of an external expert.
The validation team has also reviewed the uncertainty assessments.

Parameters	<pre>[Emissions] _logging Emissions from logging for the Reference Level</pre>		
Free of Material Misstatement	Yes		
Reported Appropriately	Yes		
Assessment Details	Emissions from logging estimated from the field measurements (stumps) from the 2nd NFI in the six northern provinces of the ER Program.		
	The validation team has reviewed the parameters used from the NFI as well as the equations used. This information was crosschecked with the country participant during the onsite visit. The validation team has reviewed the different spreadsheet which show the parameters used and the validation team has reviewed the transposition of the figures. The validation team has reviewed the usage of the 15% as a conservative factor.		
	For the uncertainty analysis, the Country has used the Monte Carlo Approach, and all the data from the spreadsheet have been assessed to avoid errors during the transpositions.		

Thus, AENOR confirms the sufficiency of quantity and appropriateness of quality of the evidence used to determine the Activity data factors and later used in the GHG reductions and removals calculations, and also that the Activity data is compliant with the Methodological Framework and the IPCC Guidelines and Guidance.

#### 4.8.2 Emission Factors

AENOR confirms the reliability of the source and nature of the reported evidence justified the selection of the emission factors; and that these have been reported in line with guidelines provided in the template and validation criteria.

AENOR confirms the correctness of each step of monitoring from measurement to data transfer and calculation and confirms the information for each parameter is complete and that the stated parameters are free of error and material misstatements.

AENOR confirms the source of emission factors is from data collected during different national inventories, and models or average values of direct measurements reported in literature and following IPCC Guidance and Guidelines.



AENOR confirms that emission factors of the ER-MR and the methods to determine them are the same for Reference Level setting and for Monitoring.

Assessment details on emission factors are as follows:

Parameters	<i>EF</i> ij Emission/Removal factors (E/R factors)				
Free of Material Misstatement	Yes				
Reported Appropriately	Yes				
	factors are developed for each type of REDD+ strata change (i.e., 20 possible change combinations) and by taking the difference in carbon stock of each of the 5 REDD+ strata.				
	AGB and BGB are the carbon pools selected.				
	ER-MR provides the values for the different type of vegetation or land uses.				
	The validation team conducted independent analysis of the information provided to confirm that the source data was reliable and appropriate. The validation team has reviewed the sources and these parameters were explained during the onsite visit.				
	Additionally, the validation team judged that the methods to estimate these parameters were reasonable and appropriate.				
Assessment Details	The validation team performed an independent check of the IPCC Guidance and Guidelines to ensure the parameters ensuring correctness.				
	The validation team conducted independent data checks for each step necessary in the quantification of these parameters. Additionally, the validation team conducted an independent review of the literature cited in reference to each equation in the calculation procedure.				
	The uncertainty associated with these parameters was independently calculated after a thorough review of the calculation spreadsheets; and the validation team reviewed and confirmed that the estimation of uncertainty was correct and without any error.				
	The validation team reviewed the ER Monitoring Report and associated links to ensure that all data related to this parameter are made public.				

# 4.9 Adjustments to the average annual historical emissions over the reference period

The RL is separated for emissions and removals, also differentiate from deforestation and forest degradation. The technical corrections are described in Annex 4 of the ERM and applies using updated E/R factors and an improved approach for the estimation of emissions from forest degradation, in order to enhance the accuracy of the estimations. The LAO team has provided to the FMT the correction sections with a note explaining the purpose of each correction. AENOR has reviewed the notes of included in the MR and considers that the methods, equations, data, and parameters used are correct and, reliable.

Lao PDR proposed an increase in the reference level values due to the technical corrections explained in the MR. specifically, from a total to 25,634,907 tCO2e/year in ER PD to 36,918,012 tCO2e/year in this current MR. AENOR confirms that the justifications and explanations for this correction are accurate and in compliance with criterion 13 of the Methodological Framework.



These corrections are not related to any change to policy and design decisions that could affect the Reference Level regarding the carbon pools and gases, GHG sources, reference period, forest definition, REDD+ activities, Accounting Area, forest types, and REDD+ activities. The VVB has assessed the technical corrections and the information related to its assessment and considers that the information is reliable, accurate and correct.

Further detail about the technical corrections made to the Reference Level as compared to that the estimates provided in the ER PD were presented in detail in ER Monitoring Report.

## 4.10 Estimated Reference Level

AENOR assessed the Reference Level for the ER Program for the Crediting Period and confirms that the Reference Level is materially accurate. AENOR confirms the relation, and its consistency, between the Reference Level, the development of the FREL/FRL submitted to the UNFCCC and the country's existing greenhouse gas inventory.

The results of the estimated Reference Level before technical correction are as follows, according to ER Monitoring Report:

Year of Reporting period	Average annual historical emissions from deforestation over the Reference Period (tCO2e/yr)	If applicable, average annual historical emissions from forest degradation over the Reference Period (tCO2e/yr)	If applicable, average annual historical removals by sinks over the Reference Period (tCO2e/yr)	Adjust- ment, if applic-able (tCO2e/yr)	Reference level (tCO2e/yr)
2019	3,748,645	6,760,730	-1,964,406	n.a.	8,544,969
2020	3,748,645	6,760,730	-1,964,406	n.a.	8,544,969
2021	3,748,645	6,760,730	-1,964,406	n.a.	8,544,969
Total	11,245,935	20,282,190	-5,893,218	n.a.	25,634,907

After applying the technical corrections, the reference level is represented as follows:

Year of Reporting period	Average annual historical emissions from deforestation over the Reference Period (tCO2e/yr)	If applicable, average annual historical emissions from forest degradation over the Reference Period (tCO2e/yr)	If applicable, average annual historical removals by sinks over the Reference Period (tCO2e/yr)	Adjust- ment, if applic-able (tCO2e/yr)	Reference level (tCO2e/yr)
2019	3,015,639	10,627,760	-1,337,395	n.a.	12,306,004



2020	3,015,639	10,627,760	-1,337,395	n.a.	12,306,004
2021	3,015,639	10,627,760	-1,337,395	n.a.	12,306,004
Total	9,046,917	31,883,281	-4,012,185	n.a.	36,918,012

## 4.11 Consistency of the Program's Reference Level with national FREL/FRL and GHG Inventory

This section is not applicable since it is not a validation with extended scope.

## 4.12 Uncertainty of the Reference Level

#### 4.12.1 Identification and assessment of sources of uncertainty

The Country Participant identified and assessed though a stepwise approach, the sources of uncertainty of the Reference Level in Activity Data (measurement, representativeness, sampling), Emission Factors (DBH measurement, H measurement, plot delineation, wood density estimation, biomass allometric model, sampling, and in other parameters such as Carbon Fraction, root-to-shoot ratios, etc.), as well as in Integration.

The validation team recalculated the uncertainty statistics independently to confirm the accuracy of the reported precision, reviewed assumptions and sources associated with parameters used in the quantification, and reviewed uncertainty of the Reference Level due to random and systematic errors. AENOR confirms that the sources of uncertainty are systematically identified and correctly assessed in the Reference Level, and addressed according to validation criteria, including the Guideline on the application of the Methodological Framework Number 4.

Additionally, AENOR confirms that there is an appropriate process for reducing uncertainty in the activity data and emission factors, where possible: systematic errors are minimized through the implementation of a consistent and comprehensive set of standard operating procedures, including a set of quality assessment and quality control processes; and random errors and other uncertainties are minimized to the extent practical based on the assessment of their relative contribution to the overall uncertainty of the emissions and removals.

#### 4.12.2 Uncertainty of the estimate of the Reference Level

The Country Participant estimated the uncertainty of the Reference Level based on Monte Carlo analysis. A total of 10,000 iterations were calculated for the cumulative emissions of the reference period. The uncertainty estimate for the Reference Level strictly follows the guidelines of Approach 2: Monte Carlo simulation from 2006 IPCC Volume 1 General Guidance and Reporting Chapter 3 as well as the Guideline on the application of the Methodological Framework Number 4.

The validation team reviewed and confirmed that elements mentioned in section 4.12.1 related to the estimation of uncertainty for the Reference Level were all addressed in the provided Uncertainty spreadsheet. AENOR also confirmed that the estimations were correct and that the results matched the Reference Level included in the ER Monitoring Report. Therefore, AENOR concludes that the application of Monte Carlo simulation for the quantification of Uncertainty of the Reference Level was performed correctly and free of errors and misstatements.



# 4.12.3 Sensitivity analysis and identification of areas for improvement of the MRV system

In order to identify the relative contribution of each parameter to overall uncertainty, a sensitivity analysis was conducted by the Country Participant in which the uncertainty of each parameter was selectively removed prior to running Monte Carlo simulations and combining uncertainties.

AENOR confirms that uncertainty of AD and EF used in Reference Level setting and the monitoring period are quantified in a consistent way.

AENOR reviewed and confirmed that above-mentioned (section 4.12.1) elements related to the sensitivity analysis were all addressed in the provided calculation spreadsheets. The validation team also confirmed that the estimations were free of errors and the results matched the sensitivity analysis included in the ER Monitoring Report. Therefore, AENOR concludes that the sensitivity analysis was performed correctly.

## 4.13 Data quality and availability

The validation team reviewed the quality and descriptions of the data and reproduced calculations of the Reference Level as presented in the ER Monitoring Report and related documents and is able to confirm that the steps are described with enough detail to enable the reconstruction of the Reference Level.

Additionally, AENOR confirms that the main methodological steps, relevant spatial information, maps, or synthesized data, related to the Reference Level, and the reported emissions are documented and included in the monitoring report and made publicly available online. There is not a specific webpage to find together all the references, but along the ER Monitoring Report there are links and references that lead to the data, methods, and assumptions.



## **5.** NON-COMPLIANCES AND OBSERVATIONS

To ensure conformance of the ER Program with all requirements set by the FCFC and the audit criteria (section 2.3), the validation team issued findings in accordance with section 11 of the VVG v2.5 in the following cases:

- Major Corrective Action Request (MCAR): i) the evidence provided to demonstrate conformity is insufficient, unclear, or not transparent and may lead to a material error, omission, or misstatement, and/or a breakdown in the systems delivery; ii) underlying assumptions used to develop the reported estimates are not supported by data; iii) material errors, omissions or misstatements have been made in applying assumptions, in data or calculations; or i) non-compliance with validation criteria.
- Minor Corrective Action Requests (mCAR): i) the evidence provided to demonstrate conformity is insufficient, unclear, or not transparent, but does not lead to a material error, omission, or misstatement, and/or a breakdown in the systems delivery; or ii) non-material errors, omissions or misstatements have been made in applying assumptions, in data or calculations;
- Observations (OBS): i) there is no objective evidence to prove that there is a nonconformity, but the VVB observes practices and/or methods that could result in future MCAR and mCAR; or ii) the VVB wishes to identify an area of the Forest Monitoring System that requires attention and/or adjustment in future monitoring and reporting.

The findings were submitted by the validation team in a single document, in which the Country Participant was able to offer answers to each of them and list supporting documents provided.

The Country Participant made the requested corrections and provided the validation team with updated versions of the ER Monitoring Report, which the validation team reassessed against the guidance documentation. The validation team either closed the opened findings when corrections, evidence and answers were satisfactory to comply with the audit criteria or asked for further corrections or clarifications. This process was repeated iteratively until all MCAR were suitably closed, as required by paragraph 62 of the VVG v2.5.

All findings, 3 MCAR, 4 mCAR and 7 Observations, issued by AENOR's audit team during the joint validation and first verification process have been closed. There are no non-compliances pending for the subsequent crediting period. Appendix 1 includes the description of all findings issued and the inputs for their closure.



# APPENDIX 1: OVERVIEW OF NON-COMPLIANCES & OBSERVATIONS ISSUED DURING THE VALIDATION BY THE VALIDATION TEAM

#### Non Conformities (NCs)

NC ID: Major	01	Date: 08/08/2023			
Description of NC	Description of NC				
5	eam cannot check and review	eference certain evidence are broken. v the information within these external			
<ul> <li>The links of the subsection "Product and inform</li> <li>The link of the link of the</li></ul>	<ul> <li>The links of the Ministry of Agriculture and Forestry in Table 6 and those under subsection "Processes for collecting, processing, consolidating and reporting GHG data and information" are broken.</li> <li>The link of the Ministry of Agriculture and Forestry in page 30 and the link for Standard Operation Procedures (SOP) for the Terrestrial Carbon Measurement in page 32 are</li> </ul>				
• The link for the section 8.3	e SOP fore terrestrial carbon m	neasurement in pages 32, 40 and 47 or			
The link in sect	tion 2.2.2: http://www.ipcc-nggip	p.iges.or.jp/EFDB/main.php			
Project Participant re	esponse	Date: 29/08/2023			
<ul> <li>We confirmed that the Ministry of Agriculture and Forestry web-server is accessible now, and the links under <u>http://dof.maf.gov.la</u> are all active and correct.</li> <li>Alternatively, we provide the documents through Google Drive</li> <li><a href="https://drive.google.com/drive/folders/1aLSFDLDI2z_VqFiD3IMItoyMFaqytopD?usp=drive_link">https://drive.google.com/drive/folders/1aLSFDLDI2z_VqFiD3IMItoyMFaqytopD?usp=drive_link</a>.</li> </ul>					
,	<ul> <li>Meanwhile, we confirmed that the link in section 2.2.2: <u>http://www.ipcc-nggip.iges.or.jp/EFDB/main.php</u> is valid.</li> </ul>				
Documentation provided by the Project Participant					
VVB Assessment Date: 20/09/2023					
The links have been updated and are accessible.					
	dated and are accessible.				

NC ID: minor	02	Date: 08/08/2023
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#### **Description of NC**

The MR template has specific requirements for each section as well as specific sections for each information. However, the following sections or topics do not comply with the MR template:

- 1. The information reported just under section 1 should be moved to the following section 1.1, which is about Implementation status of the ER Program and changes compared to the ER-PD. Complementary, according to the template, this section could only occupy 2 pages as maximum.
- 2. In section 1.2, the template indicates: "Discuss changes in major drivers and how these might affect the Displacement risks associated with the ER Program and any lessons from the ER Program's efforts to mitigate potential Displacement. ". However, this requirement is not met.
- 3. In section 2.1, please, include further information about "Systems and processes that ensure the accuracy of the data and information" as indicated in the template

Project Participant response

Date: 29/08/2023

- 1. We moved the information just under Section 1 to under Section 1.1. We understand there is no longer restrictions on the length of any section of the document as per the latest ERMR template (v.2.5, May 2023).
- 2. At the on-line discussion on 14 August 2023, we confirmed "...any lessons from the ER Program's efforts to mitigate potential Displacement." need to be further described. We added additional texts in Section 1.2 which summarizes the key lessons and efforts to mitigate potential Displacement.
- 3. At the on-line discussion on 14 August 2023, we agreed on the principle of avoiding excessive duplications. We updated the text by explaining a little more on the nature of the approach, data and information used.

#### Documentation provided by the Project Participant

VVB Assessment	Date: 20/09/2023

- 1. Section 1.1 has been updated and deemed correct.
- 2. Section 1.2 has been updated and deemed correct.
- 3. Section 2.1 has been updated and deemed correct.

Therefore, mCAR 02 is closed.

NC ID: minor	03	Date: 08/08/2023
Description of NC		



The MR template has specific requirements for each section as well as specific sections for each information. However, the following sections or topics do not comply with the MR template:

- In section 4.1, the template indicates: "Please provide the Reference Level for the ER Program for the Reporting Period covered in this report as provided in the most recent version of the ER Program Document and/or Annex 4 of the MR. If there are differences, explain these differences and whether Technical Corrections have been applied", however, this requirement is not fulfilled.
- 2. Regarding section 4.1, please provide further explanations and a detailed comparison between the RL and explain the technical corrections prior to the calculations quantification.
- 3. According to the template, in section 4.1 and 4.2, Provide sample calculations using the actual values from section 3 above with sufficient information to allow others to reproduce the calculation. Also, Regarding the reporting period, (step-by-step description of the calculation) should clearly describe the steps through which the prorata allocation has occurred and how the ERs for the Reporting Period have been calculated. However, the MR does not provide enough information to comply with the requirements.

#### Project Participant response

Date: 29/08/2023

- 1. Lao PDR applies technical correction and the details are provided in Annex 4, with further technical details in the 'technical note' (link provided in the footnote). We added a table of the RL before technical correction (ERPD 2018) which helps to compare the differences in values. In short, two corrections have been made:
  - a. Updated carbon stock values using the 3rd National Forest Inventory and the 2nd Regenerating Vegetation survey data which provides more accurate estimates.
  - b. Use of a specific map (the continuous change detection and classification spectral mixture analysis or CCDC-SMA script) that better analyzes the dynamics of shifting cultivation and therefore provides a better stratification for forest degradation for the sample-based estimation.
- 2. We added explanations and a comparison between the RL of the EROD and its technical corrections.
- 3. We provided some explanations and examples corresponding to the steps described in Section 2.2.2.

#### **Documentation provided by the Project Participant**

<b>VVB</b> Assessmen	t
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Date: 20/09/2023

- 1. Annex 4 provides adequate information regarding the Reference Level and the Technical Corrections.
- 2. Section 4.1 has been updated and deemed correct.
- 3. Sections 2.2.2, 4.1 and 4.2 have been updated and deemed correct.

Therefore mCAR 03 is closed.



NC ID:	minor	04		Date: 16/08/2023
Descri	Description of NC			
	The MR template has specific requirements for each section as well as specific sections for each information. However, the following sections or topics do not comply with the MR			
<ol> <li>In section 5.2, within the Monte Carlo table, the source of assumption shall be reported transparently. However, this requirement is not met since the information is not reported properly.</li> <li>In section 6.2, according to the template: "Please describe the design and operation by the ER Program and/or the host country of an appropriate arrangement to avoid having multiple claims to an ER Title. Discuss the design and provide evidence of the implementation and operation of a Program and Projects Data Management System in accordance with the requirements of the Methodological Framework. If applicable, highlight any changes compared to what was anticipated in the ER-PD and explain why these changes were made". However, this requirement is not met.</li> <li>In section 6.3, the template indicates: "Beyond the use and operation of the WB Emission Reduction Transaction Registry (CATS – Carbon Assets Tracking System) to issue and transfer the ER units generated under the current Program, discuss, if that's the case, the design and provide evidence of the implementation and operation registry". However, this requirement is not met.</li> <li>In section 6.3, according to the template, the following information is missing: "arrangement to ensure that any ERs from REDD+ activities under the ER Program are not generated more than once; and that any ERs from REDD+ activities under the ER Program sold and transferred under an ERPA are not used again by any entity for</li> </ol>				
4.	In section 6.3 "arrangement t are not genera ER Program so	, according to the terr o ensure that any ERs f ted more than once; and	nplate, the follo from REDD+ ac that any ERs fro r an ERPA are n	wing information is missing: tivities under the ER Program om REDD+ activities under the not used again by any entity for
	In section 6.3 "arrangement t are not genera ER Program so	, according to the terr to ensure that any ERs f ted more than once; and old and transferred under ations, compliance or any	nplate, the follo from REDD+ ac that any ERs fro r an ERPA are n	wing information is missing: tivities under the ER Program om REDD+ activities under the not used again by any entity for
Projec 1. 2. 3.	In section 6.3 "arrangement to are not general ER Program so sale, public relat <b>t Participant re</b> We filled in the We provided a ERPD. In accordance 2021), section sections have by your reference There is no nat As above or in 2.4 (August 20	, according to the terr to ensure that any ERs f ted more than once; and old and transferred under ations, compliance or any <b>esponse</b> column 'Assumption'. brief update of the progravity with Table 1 of the Valid 6.3 on ER transaction rego been reviewed by the Wo , as described, there is r tional ER transaction rego accordance with Table 21), section 6.3 on ER transaction	aplate, the follo from REDD+ ac that any ERs fro r an ERPA are n y other purpose' dation and verifi gistry is not part orld Bank task te no intention othe istry for Lao PDI 1 of the Validati ransaction regist	bwing information is missing: tivities under the ER Program om REDD+ activities under the not used again by any entity for <b>Date: 29/08/2023</b> DR has been making since the ication Guidelines 2.4 (August of scope of VVB review. These eam and legal department. For er than to use the WB CATS.
<b>Projec</b> 1. 2. 3. 4.	In section 6.3 "arrangement for are not general ER Program so sale, public relat t Participant relation We filled in the We provided a ERPD. In accordance 2021), section sections have for your reference There is no nat As above or in 2.4 (August 20 review. These department.	, according to the terr to ensure that any ERs f ted more than once; and old and transferred under ations, compliance or any <b>esponse</b> column 'Assumption'. brief update of the progravity with Table 1 of the Valid 6.3 on ER transaction rego been reviewed by the Wo , as described, there is r tional ER transaction rego accordance with Table 21), section 6.3 on ER transaction	nplate, the follo from REDD+ ac that any ERs fro r an ERPA are n y other purpose' ress that Lao PE dation and verifi gistry is not part orld Bank task te no intention othe istry for Lao PDI 1 of the Validati ransaction registi ewed by the Wo	bwing information is missing: tivities under the ER Program om REDD+ activities under the not used again by any entity for <b>Date: 29/08/2023</b> DR has been making since the ication Guidelines 2.4 (August of scope of VVB review. These eam and legal department. For er than to use the WB CATS. R. ion and verification Guidelines try is not part of scope of VVB
<b>Projec</b> 1. 2. 3. 4.	In section 6.3 "arrangement for are not general ER Program so sale, public relat t Participant relation We filled in the We provided a ERPD. In accordance 2021), section sections have for your reference There is no nat As above or in 2.4 (August 20 review. These department.	, according to the term to ensure that any ERs f ted more than once; and old and transferred under ations, compliance or any <b>esponse</b> column 'Assumption'. brief update of the progravity with Table 1 of the Valia 6.3 on ER transaction rego been reviewed by the Wo , as described, there is r tional ER transaction reg accordance with Table 21), section 6.3 on ER transactions have been revi	nplate, the follo from REDD+ ac that any ERs fro r an ERPA are n y other purpose' ress that Lao PE dation and verifi gistry is not part orld Bank task te no intention othe istry for Lao PDI 1 of the Validati ransaction registi ewed by the Wo	bwing information is missing: tivities under the ER Program om REDD+ activities under the not used again by any entity for <b>Date: 29/08/2023</b> DR has been making since the ication Guidelines 2.4 (August of scope of VVB review. These eam and legal department. For er than to use the WB CATS. R. ion and verification Guidelines try is not part of scope of VVB



- 1. Section 5.2 has been updated and deemed correct.
- 2. Section 6.2 has been updated and deemed correct.
- 3. The justification is deemed correct.
- 4. The justification is deemed correct.

Therefore, mCAR 04 is closed.

NC ID: Major	05	Date: 08/08/2023		
Description of NC	Description of NC			
	the following errors, or, the following sec ramework from the FCPF:	tions are not correct according		
<ul> <li>has implement However, this in</li> <li>In section 1.2, a lessons from th</li> <li>In section 2.2.2 methods used Measurement, values, the corr from the IPCC</li> <li>In section 2.2. sufficiently deta reported emiss documented an Program's politishared, the into verification boo available. In this publicly available and the information In section 4.2, sufficiently deta reported emissis documented an Program's politishared, the into verification boo available. In this publicly available shared, the into verification boo available. In this publicly available. In this publicly available.</li> </ul>	according to the criteria 17.3, By the time red its strategy to mitigate and/or min information is not clear in the MR according to the criteria 17.4, the following e ER Program's efforts to mitigate poter e, and according to the criteria 5.1, the E to estimate emissions and removals fo Monitoring and reporting (MMR). However relation between forest class (MR) and is not sometimes traceable. 2, and according to the criteria 6, Key ailed to enable the reconstruction of the sions and removals (e.g., data, methed accies exempt sources of information fro formation shall be made available to dy and a rationale is provided for no ese cases, reasonable efforts shall be ple to enable the reconstruction of the sions and removals (e.g., data, methed and according to the criteria 6, Key ailed to enable the reconstruction fro formation shall be made available to dy and a rationale is provided for no ese cases, reasonable efforts shall be ple to enable reconstruction. However, ation provided does not comply with the and according to the criteria 6, Key ailed to enable the reconstruction of the sions and removals (e.g., data, methed and made publicly available online. In case cles exempt sources of information fro formation shall be made available to dy and a rationale is provided for no ese cases, reasonable efforts shall be bele to enable reconstruction. However, the and the VVB is requesting for further information the VVB is requesting for further information further informat	imize potential Displacement. ng information is not met: "any ntial Displacement" R Program identifies the IPCC r Reference Level setting and er, within the different tables of the ecological zone or domain y data and methods that are he Reference Level, and the hods and assumptions), are ses where the country's or ER m being publicly disclosed or the third party validation and t making these data publicly made to make summary data section 2.2.2 is not very clear MFw criteria. y data and methods that are he Reference Level, and the hods and assumptions), are ses where the country's or ER m being publicly disclosed or the third party validation and t making these data publicly made to make summary data and t making these data publicly made to make summary data t making these data publicly made to make summary data the information in this section is		
Project Participant re	sponse	Date: 29/08/2023		



- In addition to the description in Section 1.1.b. Update on the strategy to mitigate and/or minimize potential displacement, we provided additional texts in Section 1.2 to supplements the analysis.
- As responded in mCAR 02, we added additional texts in Section 1.2 which summarizes the key lessons and efforts to mitigate potential Displacement.
- In Section 2.2.2, Table 10, a column was added to provide more traceability to the specific R/S ratio values according to the forest type and a similar forest or ecozone in the referenced IPCC tables.
- Section 2.2.2 was improved by outlining the various steps of the carbon accounting which are described in section 2.2.1. In addition, information on the calculation itself is provided by indicating which spreadsheet is used.
- Section 4.2 was revised by adding explanations using the information already provided in the sections 2.2.1, 2.2.2 and 3 in a concise manner.

#### Documentation provided by the Project Participant

 VVB Assessment
 Date: 20/09/2023

 • Sections 1.1 and 1.2 have been updated and deemed correct.
 • Section 1.2 has been updated and deemed correct.

 • Section 2.2.2 has been updated and deemed correct.
 • Section 2.2.2 has been updated and deemed correct.

- Section 2.2.2 has been updated and deemed correct.
- Section 4.2 has been updated and deemed correct.

Therefore, MCAR 05 is closed.

NC ID:	Major	06	Date: 08/08/2023	
Descri	Description of NC			
	The following information is missing by contrasting the MR and the FCPF guidelines on uncertainty analysis:			
1.	Reduction esti activity data an implementation	REDD Countries shall conduct an uncer- mation in the following way. Managing d emission factors by minimizing (i) syste of Standard Operating Procedures (S I (QA/QC) Procedures and (ii) random sification).	g and reducing uncertainty of ematic errors (bias) through the OPs) and Quality Assurance /	
2.	<ol> <li>In section 5.1, biases must be avoided as far as practical, and this can be avoided through a correct sample design which can be ensured through adequate QA/QC processes. However, this information is missing or is not clear.</li> </ol>			
3.	<ol> <li>In section 5.1, please, determine within the contribution column if the risk is random or bias.</li> </ol>			
Projec	t Participant re	sponse	Date: 29/08/2023	



- 1. At the on-line discussion on 14 August 2023, the V.V.B. confirmed this as a mistake, i.e. Section 4.2. does not require description on uncertainty analysis.
- 2. After the on-line discussion on 14 August 2023, the V.V.B. suggested the Lao team to provide further explanations on the points below. We updated the descriptions for each of the items accordingly:
  - a. Further information about the QA/QC process or the SOP is requested for Measurement;
  - b. For the representativeness, please provide a little bit more of information to determine that the uncertainty level is low;
  - c. The sampling for activity data requires more information within the description; and
  - d. For approach 3, the information is not very clear when talking about "adjustments"
- 3. We followed the table format of the template and filled in the 'Contribution to overall uncertainty (High/Low)' column including information on bias and random.

#### **Documentation provided by the Project Participant**

 VVB Assessment
 Date: 20/09/2023

- 1. The justification is deemed correct.
- 2. Section 5.1 has been updated and deemed correct.
- 3. Section 5.1 has been updated and deemed correct.

Therefore, MCAR 06 is closed.

NC ID: minor	07	Date: 08/08/2023		
Description of NC				
Please, in section 5.1, conclude if extrapolation is conducted, and if YES, they should justify if this will lead to an overestimation of ER and apply corrective measures. These errors may be avoided with QA/QC procedures				
Project Participant re	esponse	Date: 29/08/2023		
Explanation was conducted, however, we believe it does not lead to an overestimation of the Emission Reductions. We clarifed this by adding descriptions.				
Documentation provided by the Project Participant				
VVB Assessment		Date: 20/09/2023		
Section 5.1 has been updated and deemed correct.				
Therefore, mCAR 07 is	Therefore, mCAR 07 is closed.			



#### **Observations (OBSs)**

Obs ID:	01	Date: 08/08/2023	
Description of the CL			
It is stated in the initial table, that the current version, used for the VVB to review the document is the "draft version 3.1". however, this is not a draft, but a final version sent to validate/verify.			
Project Participant response Date: 2		Date: 29/08/2023	
We deleted 'draft'.			
Documentation provided by the Project participant			
VVB Assessment		Date: 20/09/2023	
The table at the front page has been updated and deemed correct.			
Therefore, OBS 01 is close	ed.		



Obs ID:		02	Date: 08/08/2023		
Descrip	Description of the CL				
Please p	provide the follow	ing explanations:			
1.	explain the mear	ning of GOL in section 1.1			
2.	in section 2.1, p	lease provide brief explanations about the	e SOPs explained in the section,		
	processes for col	lecting, processing etc.			
3.		urther information about the LAO NFMS Ro	•		
4.	please, provide categorized as "I	further explanations to determine that th ow".	e contribution in section 5.1 is		
5.	Please, explain tl	ne meaning of ODK in section 5.1			
6.		he following: " The lack of QA/QC procedur			
		ematic errors, however such possitility is ex	pected to be low considering the		
7	••	CC default value" stated in section 5.1			
7.	Please, under se	ctions 7.1 and 7.2, provide explanations to le	eave in blank both sections.		
Project	Participant respo	nse	Date: 29/08/2023		
1.	GOL is an abbrev	viation for Government of Lao PDR. We upda	ated the MR.		
2.	A brief introduct	ion of each SOP added.			
3.	A brief summary	of the NFMS Roadmap provided in footnote	2.		
4.	We updated the explanations.	e table on "Sources of uncertainty" in So	ection 5.1 by providing further		
5.	Open Data Kit (O	DK). A brief explanation provided in footnot	te.		
6.		e text as follows: "International and nation			
		RL including selection of the IPCC default va			
7		values, the possibility of systematic errors is			
7.	<ol> <li>As this is the first MR, there is no reporting of the reversals, thus 7.1. and 7.2 are not applicat and left intentionally blank.</li> </ol>				
Docum	entation provided	by the Project participant			
VVB As	sessment		Date: 20/09/2023		
1.	List of acronyms	has been updated and deemed correct.			
2.	-	een updated and deemed correct.			
3.	Section 2.1 has b	een updated and deemed correct.			
4.	Section 5.1 has b	een updated and deemed correct.			
5.	Section 5.1 has b	een updated and deemed correct.			
6.		een updated and deemed correct.			
7.	The justification	is deemed correct.			



Therefore, OBS 02 is closed.

Obs ID:		03	Date: 08/08/2023		
Descrip	tion of the CL				
Please p	provide further inf	ormation about the following:			
1.	-	rovide futher information about the enfor	cement and and participation of		
2.	-	overnment and private sector in table 3. is stated that the implementation of the NFI	follows a SOP as well as the SOP		
2.		duction of the forest type maps. Please pr			
	those topics. Als	o provide the SOP for the NFI.			
3.	-	ease provide further information about the	e contribution of sampling within		
	the table	ownerwre and wylnarability to natural distu	changes in castion 7.2		
4.	About the risk to	exposure and vulnerability to natural distur			
Project	Participant respo	nse	Date: 29/08/2023		
1.		e information for DOFI, Provincial Goverr	nment, private sector and local		
2.	community.	s about the two SOPs abovementioned, nam	aly SOR for the Terrectrial Carbon		
۷.	-	nd SOP for Forest Type Map development	•		
		cesses for collecting, processing, consolidati			
	-	links and file data are also provided (see M			
3.	-	table on "Sources of uncertainty" in Section			
4.	<ul><li>Activity Data, by providing further explanations (also see MCAR 06).</li><li>4. Additional information are provided, referring to the drivers analysis conducted for the</li></ul>				
Docum	Documentation provided by the Project participant				
VVB As	sessment		Date: 20/09/2023		
1.	Section 2.1 has b	een updated and deemed correct.			
2.	Section 2.1 has b	een updated and deemed correct. The evid	ence has been provided.		
3.		een updated and deemed correct.			
4.	4. Section 7.3 has been updated and deemed correct.				
Therefo	ore, OBS 03 is close	ed.			



Obs ID:	04	Date: 08/08/2023			
Description of the CL	Description of the CL				
In section 3.1, some values for degradation have applied a correction factor which modify the value in some of the spreadsheet tabs. The calculation through this factor is explained in a different tab than the summary tab in the spreadsheet. Please, include the final degradation value within the final or summary tab indicating the source of this degradation after the correction factor.					
Project Participant response Date: 29/08/2023					
References to the specific spreadsheet, tab and cells are now added into Section 3.1. In addition, the spreadsheet MMR1_AD_ER_Calculation_20230413.xlsx has been revised with more explanation in the tab "toread" for the calculation of forest degradation, and the values outlined in Section 3.1 are now clearly linked to the tab "Total".					
Documentation provided by the Project participant					
VVB Assessment	Date: 20/09/2023				
Section 3.1 and the calculation spreadsheet have been updated and deemed correct. Therefore, OBS 04 is closed.					



Obs ID:		05	Date: 08/08/2023		
Descrip	Description of the CL				
Please p	Please provide the following evidence:				
1.	<ol> <li>provide the evidence of the agreement between the DOF and the VCS project which will no generate ER credits</li> </ol>				
2.	2. please, provide the PLUP 2.0 guideline on participatory Land Use Planning (PLUP)				
Project	Project Participant response Date: 29/08/2023				
1. 2.	<ol> <li>As responded in mCAR 04, this falls outside the scope of the assessment and therefore, a response is not required. However, the evidence letters were provided confidentially, for the V.V.B's reference.</li> <li>We inserted a link to the PLUP 2.0 guideline.</li> </ol>				
Documentation provided by the Project participant					
VVB Assessment Date: 20/09/2023					
1. 2. Therefo	-	is deemed correct. een updated and deemed correct. ed.			



Obs ID:	06				Date: 08/08/2023	
Description of the CL	Description of the CL					
<ul> <li>Regarding the Equations, the following topics need to be addressed:</li> <li>1. in the Vietnam equation, please, explain if the correction factors have been used.</li> <li>2. In section 2.2.2, equation 1c, the parameters described under the equation do not correspond to the parameters found in the equation.</li> </ul>						
Bamboo (B), enti quoting the scier did not find the	ions that the value on the value of the value of the vidence, P10 for the correlation between the value of th	of the nor table 1.6. en the v	thern ce afther c value 24	ntral C hecking .4tc/ha	oast Regior g such evid of the M	or description ()", n of Vietnam is Used, lence, the audit team R and the evidence
mentioned:	amboos	14 ± 10%	13 ± 9%	13 ±	7% 15±11%	
<ol> <li>In some of the sections it is stated that the period for some calculations is referred to 2019-2021, while in other sections they refer to 2019-2022. Please, unify. For example, page 41.</li> <li>Same for the period 2010-2015 whereas in the spreadsheet sometimes is mentioned 2011-2015</li> </ol>						
5. In some parameters, the value for degradation differs from the final tab of the spreadsheets and the different tables of the section 3.2 of the MR. according to the visit, and as it was explained by the technical team, it is due to a technical correction and the value is in other tabs. Please, unify the parameters or homogenize the source of these values.						
Project Participant response Date: 29/08/2023						
1. We have not applied correction factors for the Vietnam's allometric equation. We clarified this in Section 3.1, parameter $EF_{ij}$ and $RF_{ij}$ – Emission and Removal factor				tor		
<ol><li>The parameters deleting the n.</li></ol>						
3. The source of the	5					
4. We believe that "2019–2021" is consistently used for describing the monitoring period. At the on-line discussion on 14 August 2023, the Lao team understood that the year "2022" for the forest type map might be causing confusion. We added a footnote under Table 5 to explain that the Forest Type Map 2022 represents the land and forest cover of 2022/01/01. With regards to the confusion of the period 2010-2015 and 2011-2015 in the spreadsheet, the spreadsheet "MMR1_AD_ER_Calculation_20230413" was revised.						
5. See our response to Obs ID 04.						
Documentation provided by the Project participant						
VVB Assessment					Date: 20/0	9/2023



- 1. The section has been clarified.
- 2. The parameters have been corrected
- 3. The parameter and the source have been updated and deemed correct
- 4. The sections have been updated to avoid confusions with the dates.
- 5. The issue has been solved and it is deemed correct.

Therefore, OBS 06 is closed



Obs ID:	07	Date: 22/08/2023	
Description of the CL			
<ol> <li>Please, provide the origin of the net emissions annual average 8,533,067tco2e/year of page 69 in annex 4</li> <li>Please improve the comparison and explanations between the original RL, showing the comparison between the data and the values in annex 4.</li> <li>Please, provide the origin of the value for the parameter: <i>Emissions</i><sub>logging</sub> Emissions from logging for the Reference level in section 8.3</li> <li>Please, provide the source of the table quantification of the uncertainty of the reference level of page 115 in section 12.2</li> </ol>			
Project Participant respo	nse	Date: 29/08/2023	
It seems that the VVB is using a file different from the ones DOF submitted to the FMT on 15 May 2023. We understand that the four comments here are on all for Annex 4. But the page numbers are incorrect.			
<ol> <li>While re-checking the entire calculation, we found an error in the logging emission estimates for the RL. In the updated Annex 4 and the main report, the logging emission was corrected to 815,195 tCO2e/year (from 803,295 tCO2e/year). We corrected Table 1 of Annex 4 accordingly and clarified that 8,544,969 tCO2e/year is an aggregation of Total Emission 10,509,375 tCO2e/year and Total Removals -1,964,406 tCO2e/year. Table 2 was also corrected.</li> </ol>			
2. See our response to mCAR 03. In section 8.3, the origin of the value for the parameter <i>Emissions</i> <sub>logging</sub> is now clearly indicating where it can be found in the spreadsheet. Furthermore, the spreadsheet "emissions from logging.xlsx" has been revised by adding a tab "StumpWork_2ndNFI FCPF CF" that includes only the stumps found in the 6 provinces of the ER program. This tab indicates specifically the data and calculations that are relevant for the ERMR.			
<ol> <li>In section 8.3, the origin of the value for the parameter Emissions<sub>logging</sub> is now clearly indicating where it can be found in the spreadsheet. Furthermore, the spreadsheet "emissions from logging.xlsx" has been revised by adding a tab "StumpWork_2ndNFI FCPF CF" that includes only the stumps found in the 6 provinces of the ER program. This tab indicates therefore specifically the data and calculations that are relevant for the ER MR.</li> <li>The source is now provided with the spreadsheet name and link and the specific tab and rows where the values are.</li> </ol>			
Documentation provided by the Project participant			
VVB Assessment		Date: 20/09/2023	

36



- 1. The explanation and the new values have been assessed by the VVB and are deemed correct
- 2. The section has been updated and deemed correct
- 3. Clarifications provided are deemed correct
- 4. The source is provided and deemed correct.

Therefore OBS 07 is deemed closed



#### APPENDIX 2: EVIDENCE PROVIDED BY COUNTRY PARTICIPANT AND REVIEWED BY AENOR

In the following table, the validation team shows the main evidence reviewed by the VVB. Nevertheless, within the ERMR there are more evidence and supporting evidence which have been reviewed by the audit team. AENOR confirms that all the links referenced in the MR work properly and they are updated.

#### Validation Report Template



Number	File
1	Lao PDR 1st ERMR_v.4.1_20230926.docx
2	AM FCPF ERPA mission Aug 14-17 2023.pdf
3	ML FCPF ERPA mission Aug 14-17 2023.pdf
4	Annexure 4 Carbon Accounting 1st ERMR_v.4.0_20230901.docx
5	DOF-Burapha letter ER Titles LaoPDR.pdf
6	Lao PDR 1st ERMR and Annexure 4_v.4.0_20230901.pdf
7	NFMS Overview.pptx
8	vietnam_frl_modifiedsubmission_final_for_posting.pdf
9	GFLL Introduction and Progress Status 2023.pptx
10	Emissions from logging.xlsx
11	LaoPDR_Uncertainty MC MMR1 20230413.xlsx
12	MMR1_AD_ER_Calculation_20230413.xlsx
13	Note to FTM on TC rev20220411.pdf
14	Official letter_technical Correction.pdf
15	Combined_map_sampling_AD1922_v3.tif
16	All plots MMR 20220928.xlsx
17	CCDC_SMA_2005_2010_v11.tif
18	CCDC_SMA_2010_2015_v11.tif
19	ERPD_REL+UncertaintyAssessment180516re.xlsx
20	SBE_matrix_final_for_TC.xlsx
21	TC_plots_2005_2010.xls
22	TC_plots_2010_2015.xls
23	Final NFI3 Cstock.xlsx
24	FI3 Cstock Calculation.xlsx
25	MMR1_AD_ER_Calculation_20230303.xlsx



#### **Document information**

Version	Date	Description
1.2	September 2021	Section 4.3 has been included to request information on the start date of the crediting period.
1.1	November 2020	Reference to the newly approved Guidelines on Uncertainty Analysis of Emission Reductions.
1.0	August 2020	Initial version adopted.